
4. Troubleshooting

4-1 Checkpoints by Error Mode

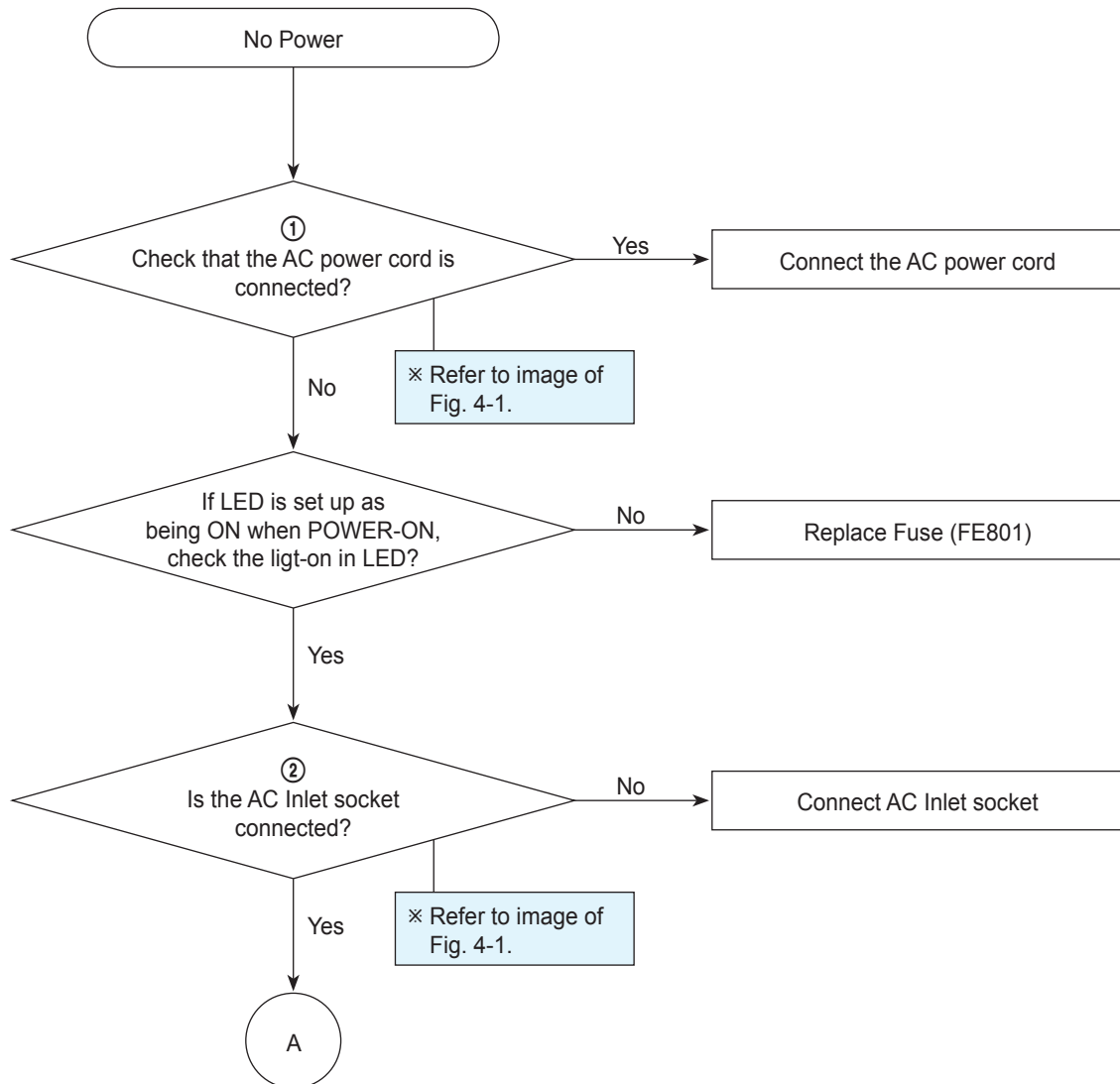
4-1-1 First Checklist for Troubleshooting

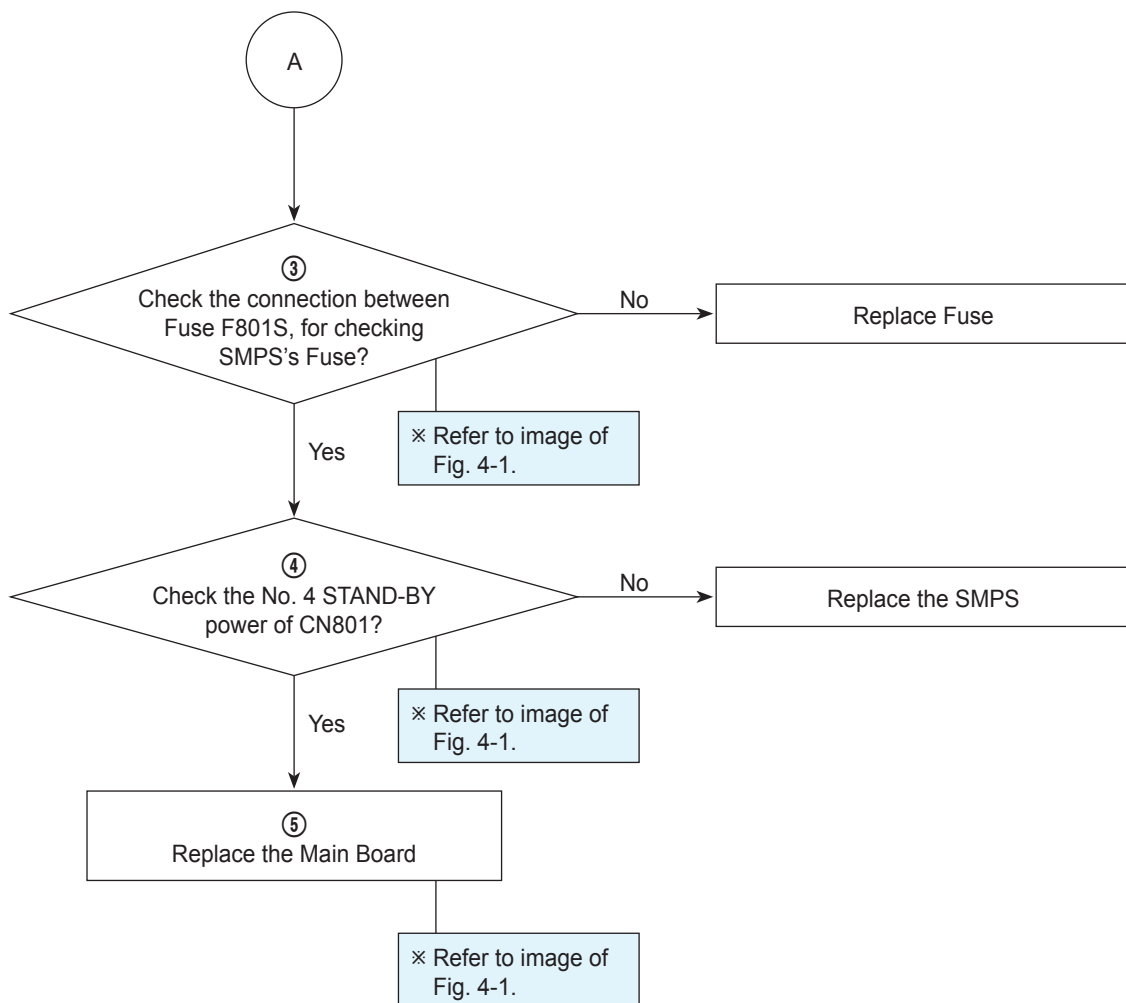
1. Check the various cable connections first.
 - Check to see if there is a burnt or damaged cable.
 - Check to see if there is a disconnected or loose cable connection.
 - Check to see if the cables are connected according to the connection diagram.
2. Check the power input to the Main Board.
3. Check the voltage in and out between the SMPS ↔ Main Board, between the SMPS ↔ X, Y Main Board, and between the Logic Boards.

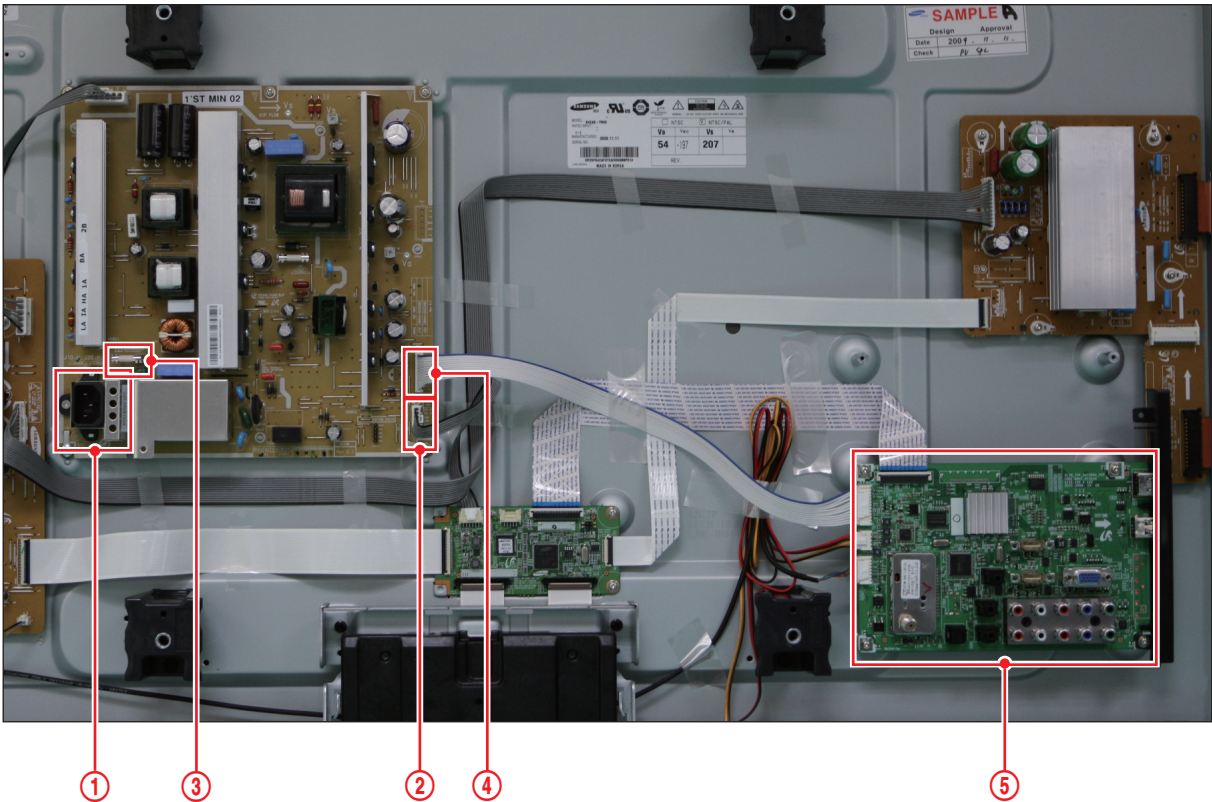
4-1-2 Checkpoints by Error Mode

■ No Power

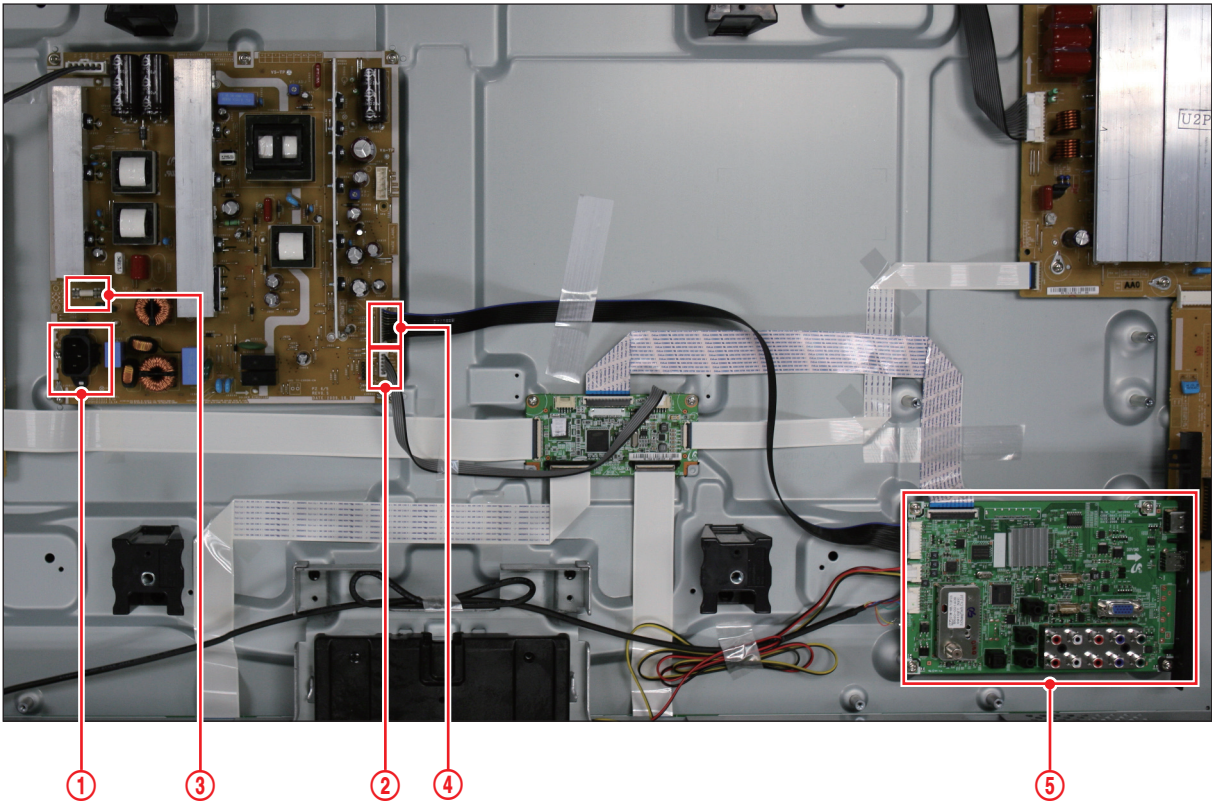
Symptom	- The LEDs on the front panel do not work when connecting the power cord. - The SMPS relay does not work when connecting the power cord. - The unit appears to be dead.
Major Checklist	The SMPS relay or the LEDs on the front panel does not work when connecting the power cord if the cables are improperly connected or the Main Board or SMPS is not functioning. In this case, check the following: - Check the internal cable connection. - Check the fuses. - Check the output voltages of the SMPS. - Replace the Main Board.







<42" PDP>

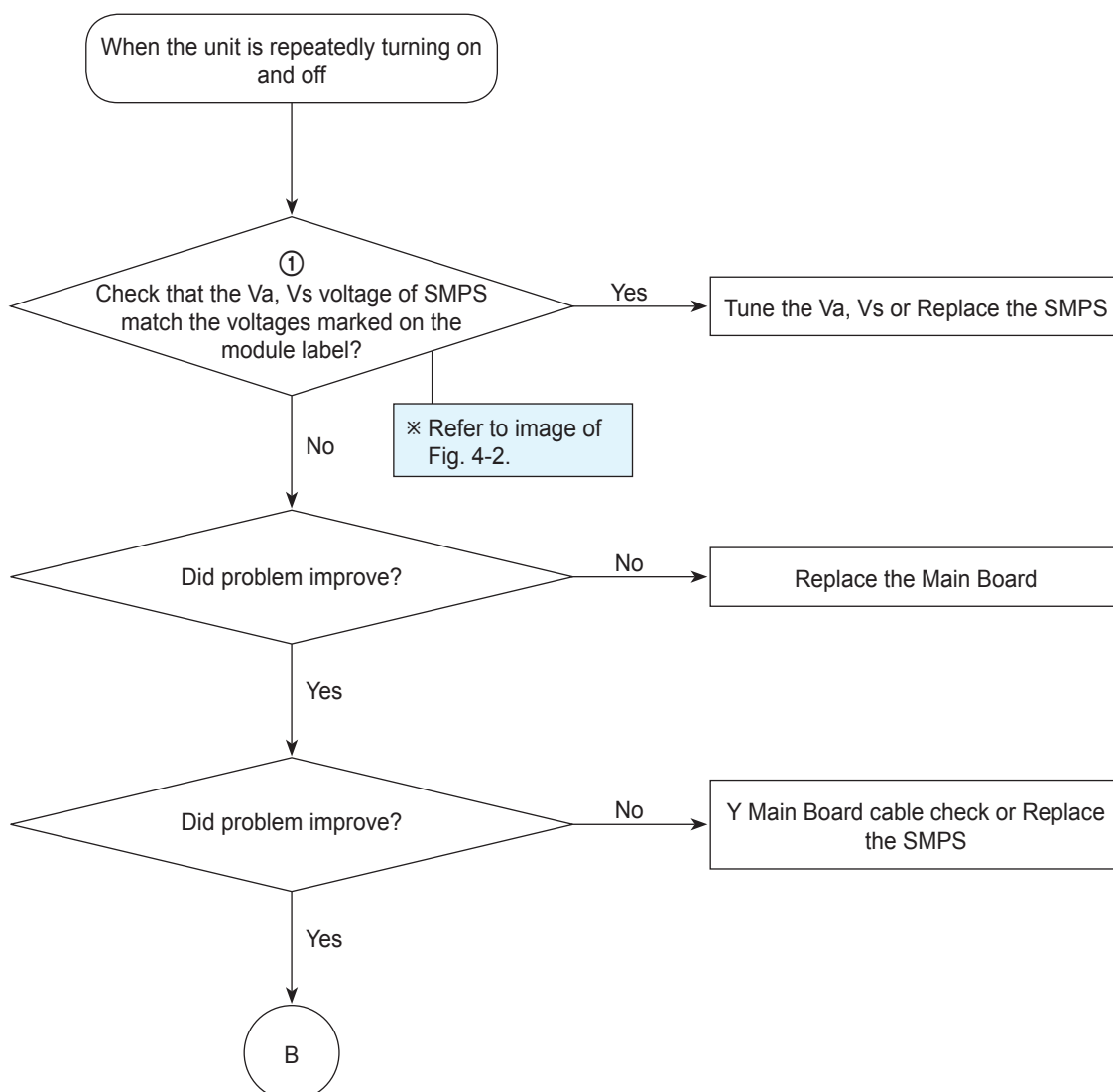


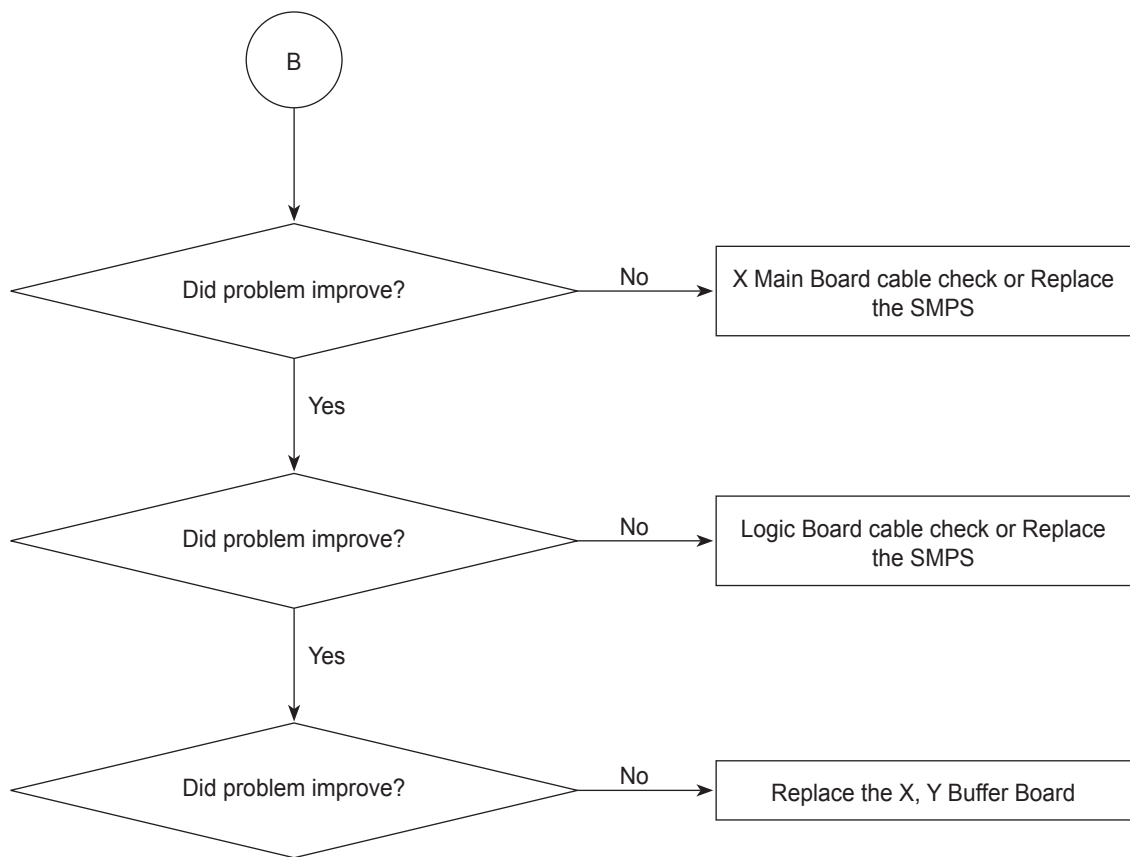
<50" PDP>

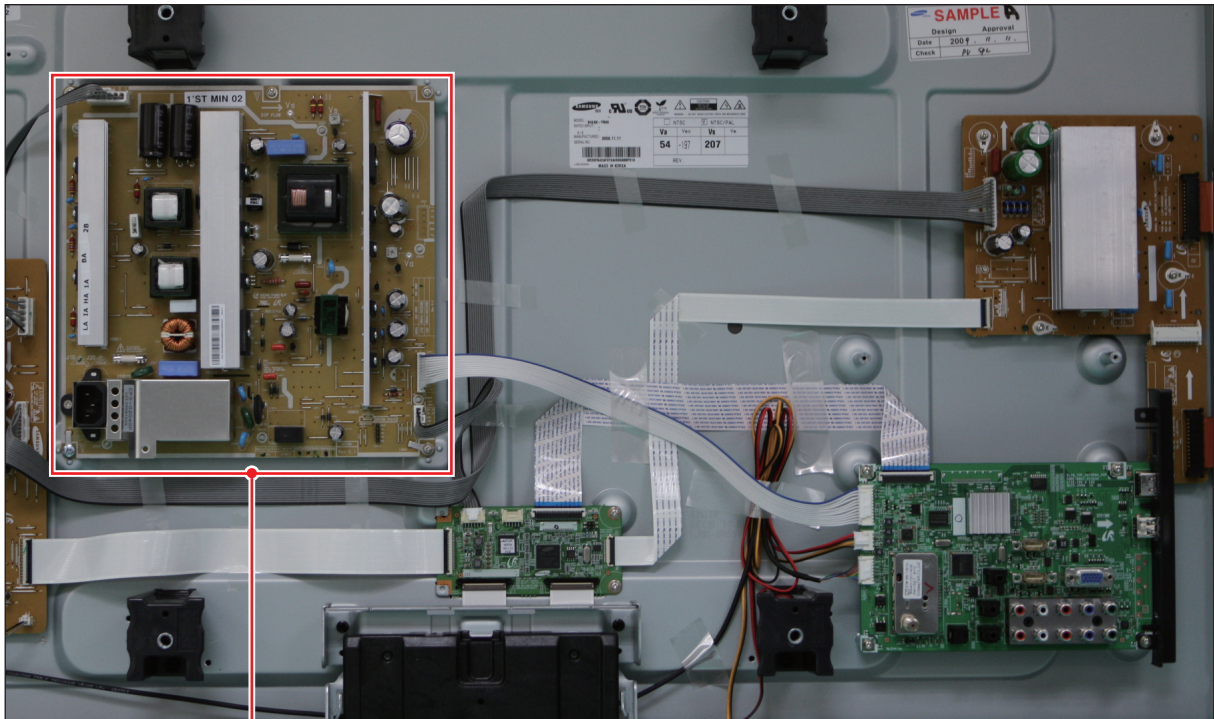
<Fig. 4-1>

■ When the unit is repeatedly turning on and off

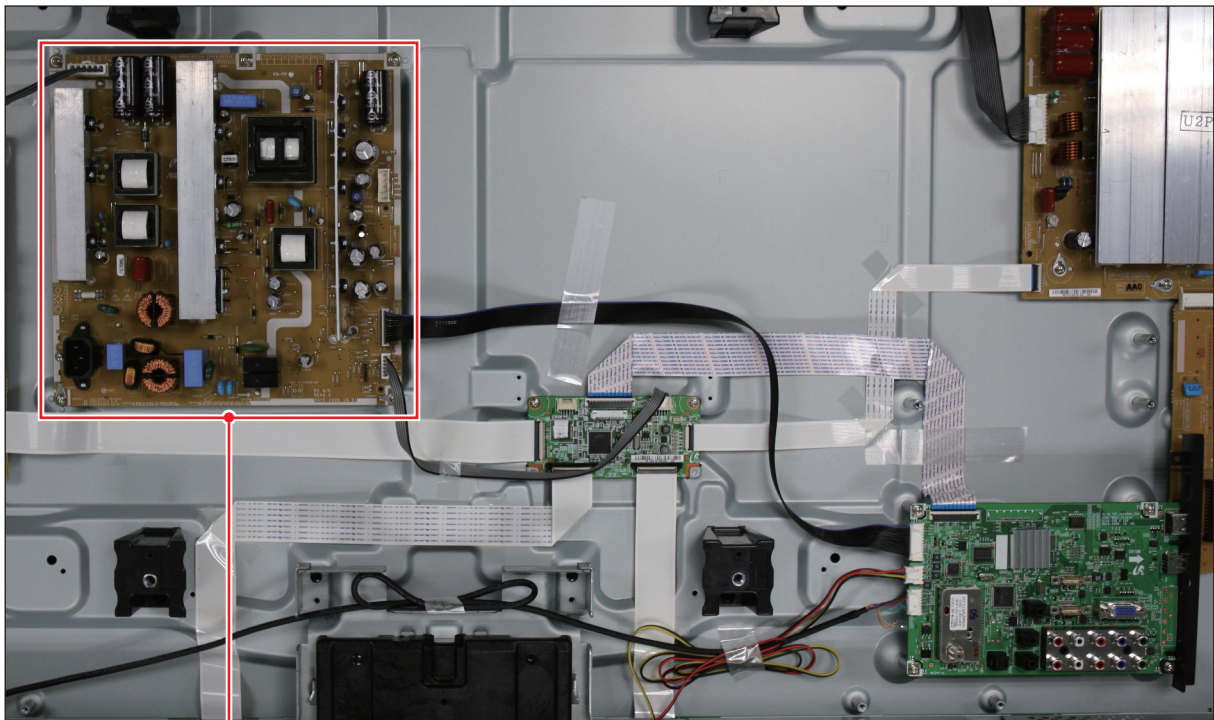
Symptom	The SMPS relay is repeatedly turning on and off.
Major Checklist	In general, the SMPS relay repeatedly turns on and off by the protection function due to a defect on a board connected to the SMPS. - Disconnect all cables from the SMPS, operate the SMPS alone and check if the SMPS works properly and if each voltage output is correct. - If the symptom continues even when SMPS is operating alone, replace the SMPS. - If the symptom is not observed when operating the SMPS alone, find any defective assemblies by connecting the cables one by one.
Caution	When separating and connecting the cables such as SMPS, X MAIN Board and Y MAIN Board, a spark may be generated by the electric charge of the high capacity capacitor. Therefore, wait some time after disconnecting the power cord from the unit.







<42" PDP>

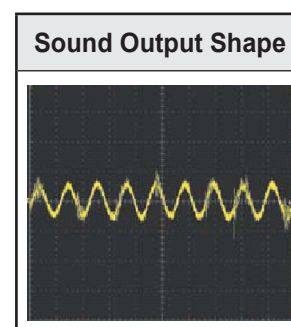
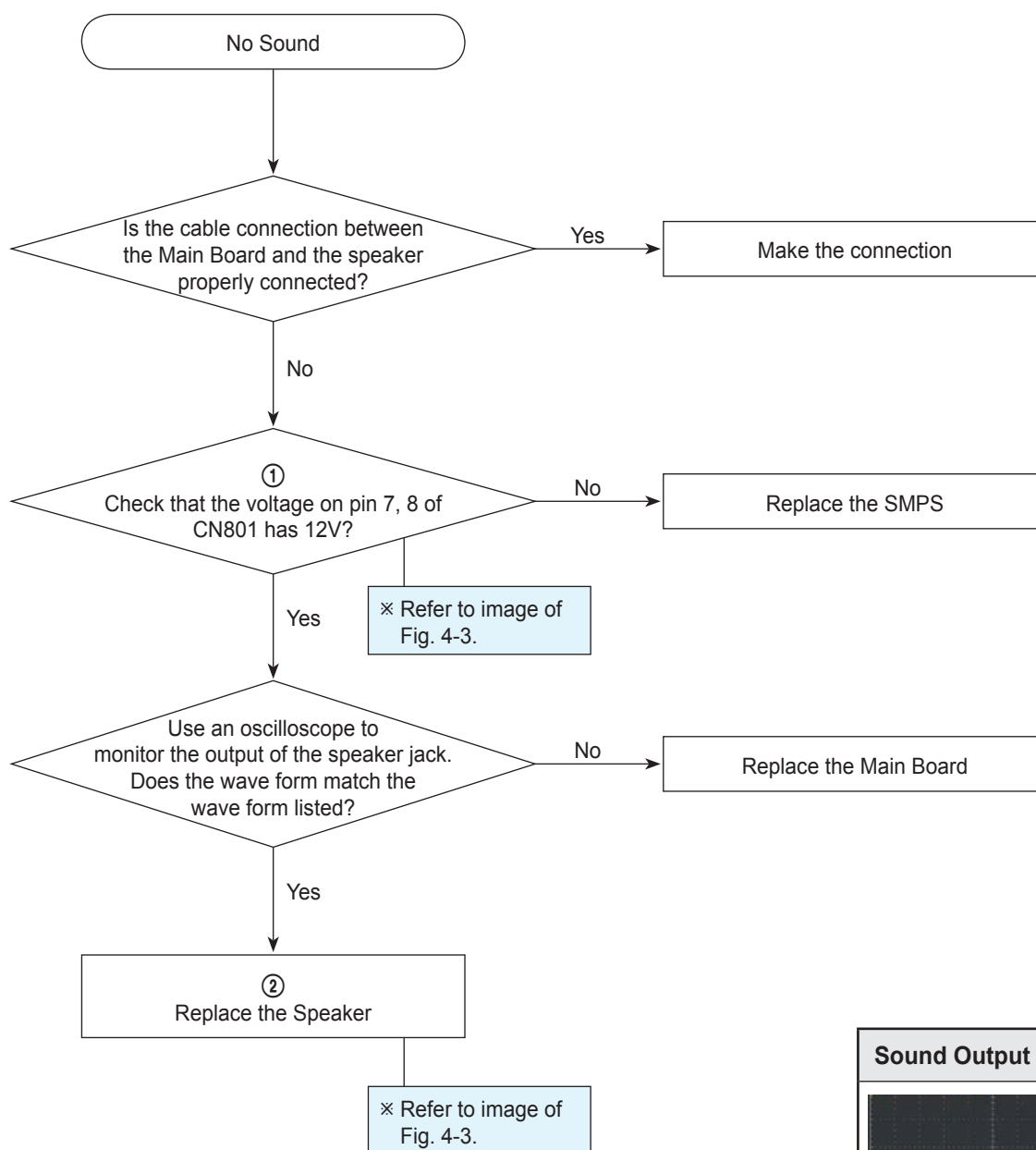


<50" PDP>

<Fig. 4-2>

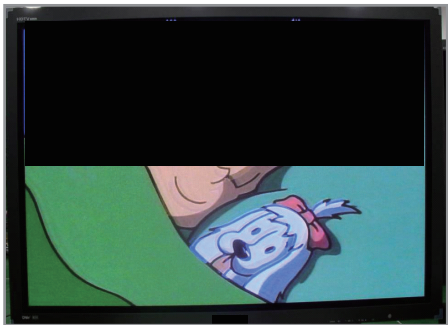
■ No Sound

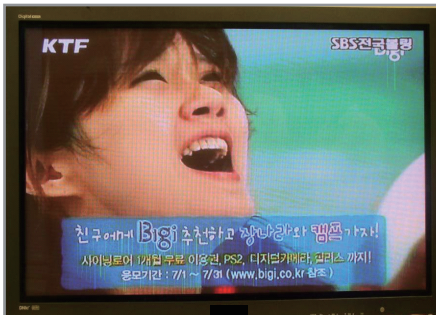
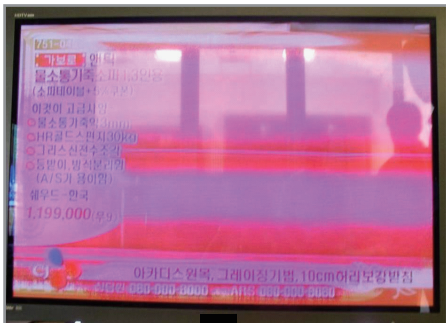
Symptom	Video is normal but there is no sound.
Major Checklist	Generally there are four things that can cause this issue. - Speakers not connected - Speakers are defective - Main board audio error - SMPS not supplying voltage to the main board



Samsung Electronics

4-1-3 Faults and Corrective Actions

Symptom	Related Image	Causes and Countermeasures
A blank vertical cell (block) appears on the screen.		Address buffer defect - Replace the corresponding upper/lower buffers (E, F or G) COF defect (burnt) - Replace the module
A green screen appears when the TV is turned on.		The Scale is not resetting - Replace the Main board
The OSD box appears but there is no text.		Incorrect program version - Check the version of each program - Replace the Main board
A blank upper (or lower) block appears on the screen.		Upper/Lower Y Buffer defect - Replace the corresponding upper/lower buffers

Symptom	Related Image	Causes and Countermeasures
Either the main or sub picture does not appear.		Replace the Main board
A vertical green line appears on the screen.		The SMPS voltage is incorrect - Adjust the SMPS voltage according to the voltage printed on the module label
Dim screen (blurred in red)		X-Main board defect - Replace the X-Main board

4-1-4 Troubleshooting Procedures by assembly

※ If Major Symptoms is happened, Check Assembly refer to table as follow.

Assembly	Major Symptoms
SMPS-PDP TV	No power, Blank screen, the Relay repeats On and Off
ASSY PDP P-X-MAIN BOARD	Blank screen
ASSY PDP P-Y-MAIN BOARD	Blank screen
ASSY PDP P-LOGIC MAIN BOARD	Blank screen, Screen noise
ASSY PDP P-X-MAIN BUFFER BOARD	Upper screen is blank
ASSY PDP P-Y-MAIN BUFFER BOARD	Lower screen is blank
ASSY PDP P-E-BUFFER BOARD	Corresponding Buffer Board block screen is blank
ASSY PDP P-F-BUFFER BOARD	Corresponding Buffer Board block screen is blank
ASSY PCB MISC-MAIN	No Power, Abnormal screen for each input source, PIP screen trouble, Sound trouble
ASSY BOARD P-TOUCH FUNCTION&IR	The side function key does not work properly. The remote control does not work properly, the LED does not work properly.

4-2 Adjustment

4-2-1 Service Instruction

■ Before performing service

1. Check if the measurement and test equipment is working properly.
2. Secure sufficient work space for disassembling the product.
3. Prepare a soft pad for disassembling the product.

■ Service adjustment after board replacement

<If adjustment equipment is available>

1. PDP Option of Factory Mode → set the Factory Data Type item as the suitable value of relevant model.
2. Adjust Calibration of Factory Mode for each mode.
3. Adjust White Balance of Factory Mode.

<If adjustment equipment is not available>

1. Write down the value of HDMI White Balance of Factory Mode before replacing Board.
2. PDP Option of Factory Mode → set the Factory Data Type item as the suitable value of relevant model.
3. Set the value of HDMI White Balance with the value written down before.

4-2-2 How to Access Service Mode

1. General Remote

To Enter : **POWER OFF** → **INFO** → **MENU** → **MUTE** → **POWER ON**

To Exit : **POWER OFF** → **POWER ON**

2. Factory Remote

To Enter : **POWER ON** → **INFO** → **Factory Key** (Interval between key strokes: less than 3 sec)

To Exit : Press the Factory key twice. (Pressing once enters Aging Mode)

3. Settings when entering Factory mode

- Sharp Screen (Dynamic), Color Tone (Cool1), Factory (Dynamic CE Off)

4. Adjustment Procedures

- Channel ▲▼ Key : Select an item.
- Volume ◀▶ Key : Adjust the value up or down.
- MENU Key : Save the changes to the EEPROM and return to the higher-level mode.
- Using the Numeric (0~9) keys, you can select a channel.
- Using the SOURCE key, you can switch AV modes.

5. Initial SERVICE MODE DISPLAY State

Option	T-TDT5DEUC – XXXX.X
Control	T-TDT5DEUS – XXXX.X
SVC	EDID SUCCESS
Expert	CALIB
ADC/WB	Option
Advanced	

※ The version of the firmware displayed at the bottom of the screen may differ and the firmware is subject to change for the improvement of product functions.

※ If you have adjusted the settings in Service Mode, you have to reset the product.

4-2-3 Factory Data

■ Option

Item	Data	Range
Factory Reset		
Type	42HHcD4	42HHcD3 / 50HHcD4 / 50FARn4 / 50FARv4 / 58FARn1 / 58FARv1 / 63FARn1
Local Set	EU or AD_Au	EU / EU Italy / EU_Africa / EU_Israel / NORDIG / AD_Au / CIS
Model	PC430	PC420 / PC430 / PC431 / PC432 / PC450 / PC451 / PC480 / PC520 / PC530 / PC531 / PC540 / PC541 / PC550 / PC551 / PC560 / PC580 / PC590 / PC670 / PC6100 / PC6400 / PC6500 / PC7000 / PC7700 / PC8000
Tuner	DRXSEMCO or DRXKALPS	S2Semco / T2CXD / DRXKSEM_E / DRXKALPS / DRXKSEM_2
DDR	0	0 / 1 / 2
Light Effect	Off	On / Off
Ch Table	SEH or SDMA_AU	NONE / PBA / SUWON / SESK / SEH / SERK / SDMA_AU / SDMA_NZ / SDMA_SG / SEIN / SAVINA / SIEL_C / SIEL_N / TTSEC / TSED / TSE / IRAN
Country		
Front Color	W-Violet or S-C-Gray	S-C-Gray / S-R-Black / S-BLK / T-R-BLK / T-C_Gray / W-Violet / W-Milky / T-M-Brn / T-W-Gray / W-D-Gray / W-M-White

■ Control

Menu	Item	Data	Range
EDID	EDID Protect	On	On / Off
	EDID Type	P13_1920_1080	L12_1366_768 / L13_1366_768 / L12_1920_1080 / L13_1920_1080 / P12_1024_768 / P13_1024_768 / P12_1366_768 / P13_1366_768 / P12_1920_1080
Sub Option	EDID Write(0x4D,0)	P13_1920_1080	
	Video Mute Time	8	1 ~ 10
	Inch	50"	19" / 22" / 23" / 26" / 27" / 32" / 37" / 40" / 42" / 46" / 50" / 52" / 57"
	Dimm Type	EXT	Don't adjustment
	D.Gamma	Off	Off / 0.85 / 0.880.90.0.93 / 0.95 / 0.98 / M1 / M2 / M3 / M4
	TTX	On	On / Off
	TTX List	Flof	Flof / List
	TTX Group	W Europe	Lang OSD / W Europe / E Europe / Russia / Greek / Turkey / Arab / Farsi / ArabHbrw
	High Devi	Off	On / Off
	Volume Curve	EA	EA / India
	NT Conversion	Off	On / Off
	Language Group	East Asia	East Asia / Iran / Israel / Middle Asia
	Anynet+	On	On / Off
	Auto Power	On	On / Off
	LNA Menu	Off	On / Off
	LVDS_Format	Default	Don't adjustment
	Carrier Mute	Off	On / Off
	HDMI EQ1	Off	Off / Low / Middle / Strong
	HDMI EQ2	Off	Off / Low / Middle / Strong
	HDMI EQ3	Low	Off / Low / Middle / Strong
	HDMI EQ4	Low	Off / Low / Middle / Strong
	Watch Dog	Off	On / Off
	Bus Stop		
	Panel Auto Setting		Don't adjustment

Menu	Item	Data	Range
Sub Option	HotPlug	On	On / Off
	HotplugCtrl	On	On / Off
	HOTPlugDelay	9	0 ~ 63
	USB Upgrade	On	On / Off
	Spread Spectrum		On / Off
PDP Option	PixelShift Test	Off	On / Off
	Logic Download	Off	On / Off
	Pattern Select		
	FRC Mode		100Hz / Repeat
	FRC DBG MarkOn		0 ~ 31
	FRC Bypass		On / Off
	FRC MV Force		On / Off
	MB SW		On / Off
	MB Offset		0 ~ 255
	Ve Control		On / Off
	DRC		On / Off
	Logic USB D/L		
Hotel Option	Not used	Not used	
Shop Option	Off	On / Off	
Sound	Detection Threshold		
	FM Prescale	22	0 ~ 255
	AM Prescale	22	0 ~ 255
	Nicam Prescale	33	0 ~ 255
	FM M Prescale	23	0 ~ 255
	SC1 Vol	12	0 ~ 255
	SC2 Vol	12	0 ~ 255
	Audio Delay Normal	8	0 ~ 255
	Audio Delay Game	8	0 ~ 255
	Num of Check	10	0 ~ 255
	Stereo Cnt	10	0 ~ 255
	MP3 Level	12	0 ~ 255

Menu	Item	Data	Range
Sound	Ext Volume Scale	2	0 ~ 255
	R2E Scart2 fset	1	0 ~ 255
	NTP3200		
	NTP Master Volume	30	0 ~ 255
	NTP PWM Modulation	208	0 ~ 255
	NTP DRC Thresh1	53	0 ~ 255
	NTP DRC Thresh2	35	0 ~ 255
	NTP Speaker EQ	On	On / Off

■ SVC

Menu	Item	Data	Range
Test Pattern	Pattern Sel		
	FRC PC Mode	Off	On / Off
	Logic Pattern Sel	0	0 ~ 13
	Logic Level Sel	255	0 ~ 255
Panel auto Setting		Failure	
Panel Display Time		4Hr	4Hr
Logic Usb D/L		Success	
Tuner Status	DVB		
	ISDB-T		

■ Expert

Menu	Item	Data	Range
N/D ADJ	...		
Source	...		

■ ADC/WB

Menu	Item	Data	Range
ADC			
ADC Target	1st_AV_Low	17	0 ~ 255
	1st_AV_High	234	0 ~ 255
	1st_AV_Delta	3	0 ~ 255
	1st_Comp_Low	17	0 ~ 255
	1st_Comp_High	234	0 ~ 255
	1st_Comp_Delta	3	0 ~ 255
	1st_PC_Low	1	0 ~ 255
	1st_PC_High	235	0 ~ 255
	1st_PC_Delta	3	0 ~ 255
	2nd_Low	2	0 ~ 255
	2nd_High	235	0 ~ 255
	2nd_Delta	1	0 ~ 255
ADC Result	ADC Result	Depend on Calibration results	0 ~ 255
	1st_AV_Gain		0 ~ 255
	1st_AV_Offset		0 ~ 255
	1st_Comp_Gain		0 ~ 255
	1st_Comp_Gain_Cb		0 ~ 255
	1st_Comp_Gain_Cr		0 ~ 255
	1st_Comp_Offset		0 ~ 255
	1st_Comp_Offset_Cb		0 ~ 255
	1st_Comp_Offset_Cr		0 ~ 255
	1st_PV_R_Gain		0 ~ 255
	1st_PV_G_Gain		0 ~ 255
	1st_PV_B_Gain		0 ~ 255
	1st_PC_R_Offset		0 ~ 255
	1st_PC_G_Offset		0 ~ 255
	1st_PC_B_Offset		0 ~ 255

Menu	Item	Data	Range
ADC Result	2nd_R_Offset	Depend on Calibration results	0 ~ 255
	2nd_G_Offset		0 ~ 255
	2nd_B_Offset		0 ~ 255
	2nd_R_Gain		0 ~ 255
	2nd_G_Gain		0 ~ 255
	2nd_B_Gain		0 ~ 255
WB	Sub Brightness	Depend on W/B adjustment	0 ~ 255
	Red Offset		0 ~ 255
	Green Offset		0 ~ 255
	Blue Offset		0 ~ 255
	Sub Contrast		0 ~ 255
	Red Gain		0 ~ 255
	Green Gain		0 ~ 255
	Blue Gain		0 ~ 255

■ Advanced

Menu	Item	Data	Range
Sub Setting	Gamma	0.95	
	Pwm Max	100	
	Pwm Min	7	
	Pwm Mid	10	
	Contrast Dimming	Off	
	7.5 IRE NTSC	...	
	7.5 IRE Offset	...	
	Comp Phase	49	
	Led Peak On/Off	off	
EPA Standard	Standard Contrast	95	0 ~ 100
	Standard Brightness	42	0 ~ 100
	Standard Sharpness	50	0 ~ 100
	Standard Color	50	0 ~ 100
	Standard Tint	0	0 ~ 100
	Standard Backlight	14	0 ~ 100
WB Movie	WB Movie	Off	On / Off
	Color Mode	-	Dynamic / Standard / Movie
	Color Tone	-	Cool / Normal / Warm1 / Warm2
	Msub Brigh	-	0 ~ 255
	Msub Contr	-	0 ~ 255
	W1_RGAIN	-	0 ~ 255
	W1_BGAIN	-	0 ~ 255
	W1_ROFFS	-	0 ~ 255
	W1_BOFFS	-	0 ~ 255
	W2_RGAIN	-	0 ~ 255
	W2_BGAIN	-	0 ~ 255
	W2_ROFFS	-	0 ~ 255
	W2_BOFFS	-	0 ~ 255
	N_RGAIN	-	0 ~ 255
	N_BGAIN	-	0 ~ 255

Menu	Item	Data	Range
WB Movie	W2_ROFFS	-	0 ~ 255
	W2_BOFFS	-	0 ~ 255
	N_RGAIN	-	0 ~ 255
	N_BGAIN	-	0 ~ 255
	N_ROFFS	-	0 ~ 255
	N_BOFFS	-	0 ~ 255
	Movie Contr	-	3 ~ 100
	Movie Brigh	-	2 ~ 100
	Movie Color	-	1 ~ 100
	Movie Sharp	-	0 ~ 100
	Movie Tint	-	0 ~ 50
	Movie BkLight	-	0 ~ 10
	M.Gamma	-	Off / 0.85 / 0.88 / 0.90 / 0.93 / 0.95 / 0.98 / M1 / M2 / M3 / M4
	M_Sub Gamma	-	-3 ~ +3

4-2-4 Service Adjustment

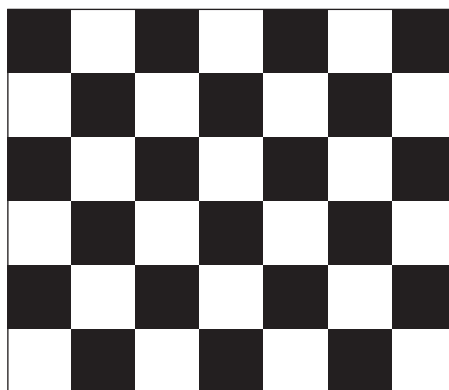
■ White Balance - Calibration

If picture color is wrong, do calibration first.

Execute calibration in Factory Mode

1. Source : VIDEO
2. Setting Mode : PAL (Mode: #2)
3. Pattern : Pattern #24 (Chess Pattern)
4. Use Equipment : K-7256 or Equipment of equality level
5. Work order
 - 1) Enter by Factory Mode select "ADC/WB".
 - 2) Select "ADC".
 - 3) Select "AV CALIBRATION" again in CALIBRATION MENU.
 - 4) After Completing Calibration, come out "Av success". OSD on the screen

Source AV : PAL composite
PC : 1280*720/60Hz

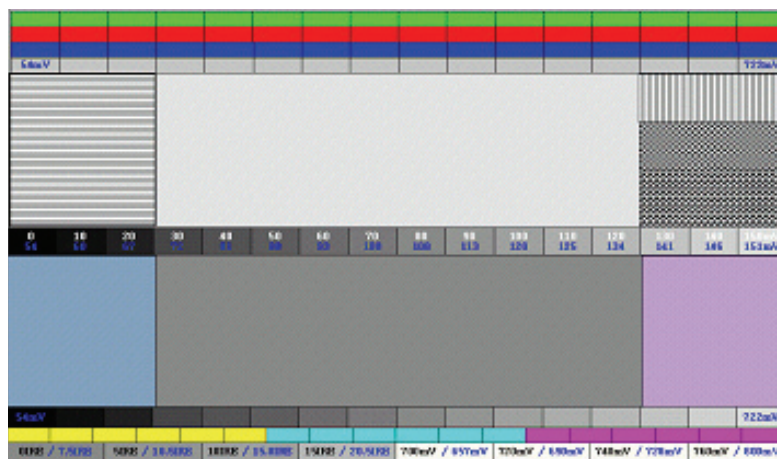


< Chess Pattern >

■ White Balance

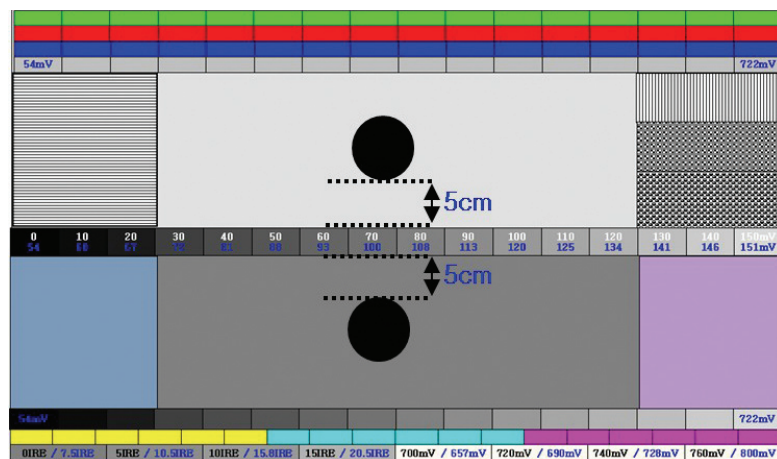
Adjust spec.

1. Source : HDMI
2. Setting Mode : 1280*720@60Hz
3. Pattern : Pattern #92
4. Use Equipment : MIK-7256 (MSPG925L)



5. Work order

- 1) Connect HDMI (DVI) output terminal of MIK-7256 (MSPG925L) to the HDMI input in main set
- 2) Set the input to HDMI mode
- 3) Enter the White Balance menu of service mode
- 4) Contact CA-210 sensor to glass filter



< Fixed Position of CA210 Probe >

- 5) Adjust the low light
 - Adjust Sub-Bright to set the 'Y' value
 - Adjust R-Offset ('x') and B-Offset ('y') to the color coordinates.
 - * Do not adjust G-Offset data
- 6) Adjust the high light
 - Adjust Sub-Contrast to set the 'Y' value
 - Adjust R-Gain ('x') and B-Gain ('y') to the color coordinates.
 - * Do not adjust the G-gain data

Input mode		(CA-210)			
		x	y	Y(L)	T(K), MPCD
CVBS (PAL)	H/L	278	285	Don't Control (Sub_CT:133)	10,500/±0
	L/L	278	285	7.3 cd/m ² (2.2 Ft)	10,500/±0
COMP (720P)	H/L	278	285	Don't Control (Sub_CT:133)	10,500/±0
	L/L	278	285	7.3 cd/m ² (2.2 Ft)	10,500/±0
HDMI (720P)	H/L	278	285	Don't Control (Sub_CT:133)	10,500/±0
	L/L	278	285	7.3 cd/m ² (2.2 Ft)	10,500/±0

4-2-5 Replacements & Calibration

* Check items listed after changing each

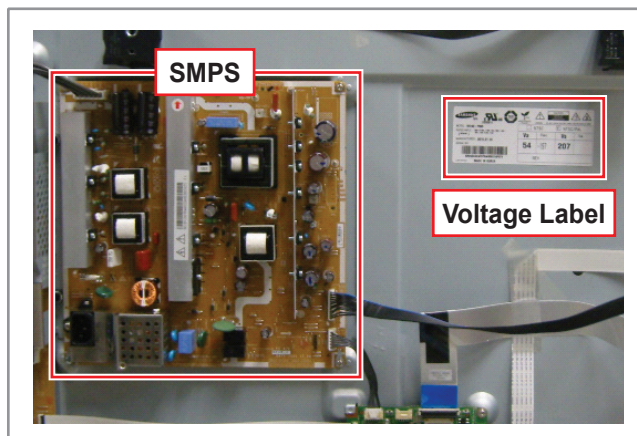
Replaced assembly items	Check Items
ASSY PCB MISC-MAIN	① Auto Program ② White Balance Adjust
SMPS-PDP TV	Vs, Va voltage check and adjust
ASSY PDP P-X-MAIN BOARD	Not to be adjusted
ASSY PDP P-Y-MAIN BOARD	
ASSY PDP P-LOGIC MAIN BOARD	
ASSY PDP P-X-MAIN BUFFER BOARD	
ASSY PDP P-Y-MAIN BUFFER BOARD	
ASSY PDP P-E-BUFFER BOARD	
ASSY PDP P-F-BUFFER BOARD	
ASSY BOARD P-TOUCH FUNCTION&IR	

※ When replacing the SMPS or PDP panel, you have to check the voltage printed on the panel sticker and adjust it.

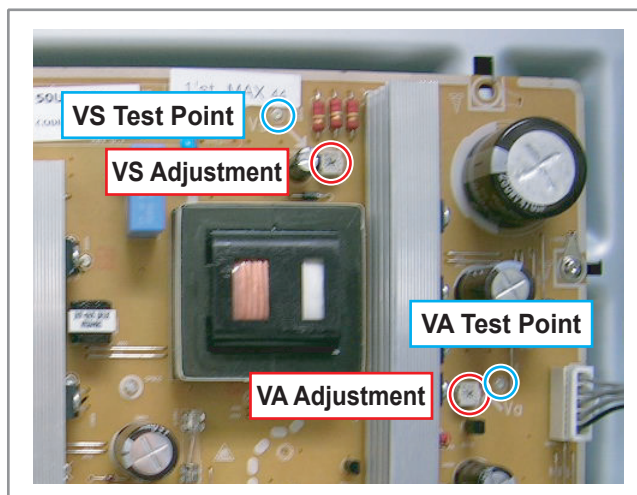
■ Voltage Adjustment

1. After replacing the SMPS or PDP panel, you must adjust the voltage referring to the voltage label printed on the panel. (If you do not adjust the voltage, an abnormal discharge symptom may appear.)

	Value	Board Adjustment
	U2P	
Vs	207	SMPS
Va	56	
Vset	-	
Ve	97	
Vsc	-197	



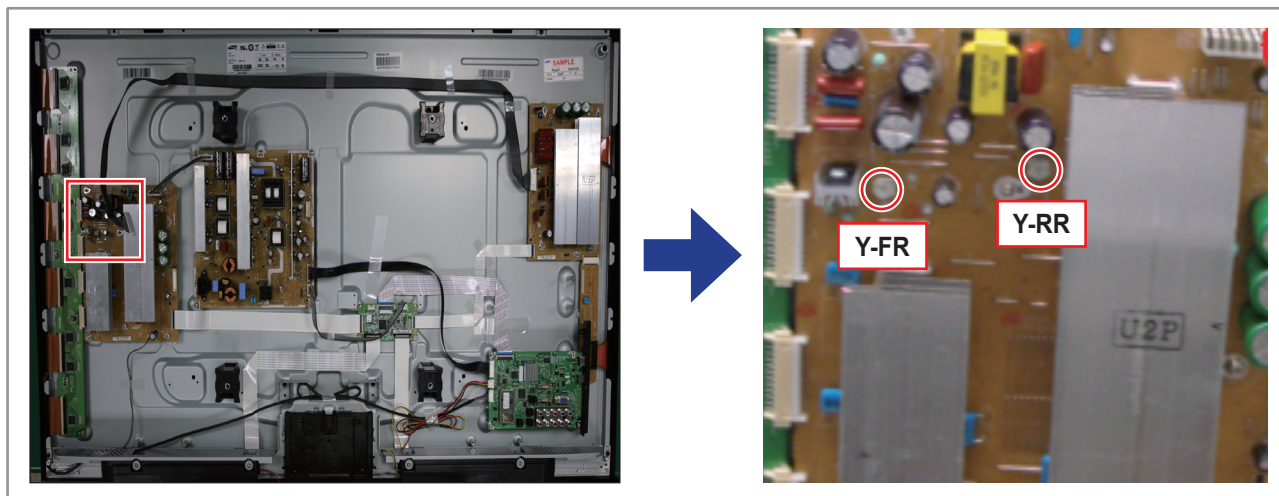
2. A point of adjusting SMPS-MAIN voltage.



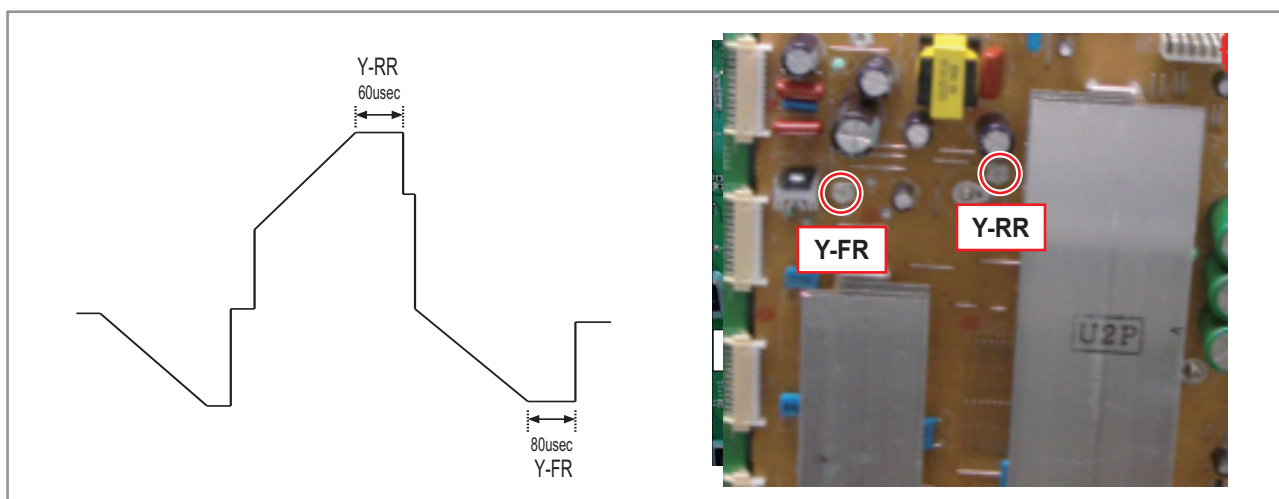
■ SMPS Output Voltag

		Output Voltage			Output Current				Load Characteristics	Usage	Remark
		Normal	Regulation	Variable Range	Min	Max	Peak	Typical			
1	Vs	198V	±1.5%	195~210	0.0 A	2.4 A	15.0 A	2.0 A	Pulsating	Drive	
2	Va	55V	±2%	Fixed	0.0 A	2.0 A	13.0 A	1.5 A	Pulsating	Drive	
3	D5.3V	5.2V	±5%	Fixed	0.0 A	6.5 A	7.0 A	4.5 A	Constant	Image, Logic	
4	D15V	15V	±5%	Fixed	0.0 A	3.0 A	5.0 A	2.2 A	Constant/ Pulsating	Image, Drive	
5	15V_amp	15V	±5%	Fixed	0.0 A	3.0 A	5.0 A	0.5 A	Constant / Pulsating	Sound	
6	STBY	5.2V	±3%	5V	0.0 A	1.0 A	1.5 A	0.3 A	Constant	Stand-by	step change

■ Y-RR and Y-FR controls



※ Set the main reset (rising : 60usec, falling : 80usec) by change the value of variable resistor.

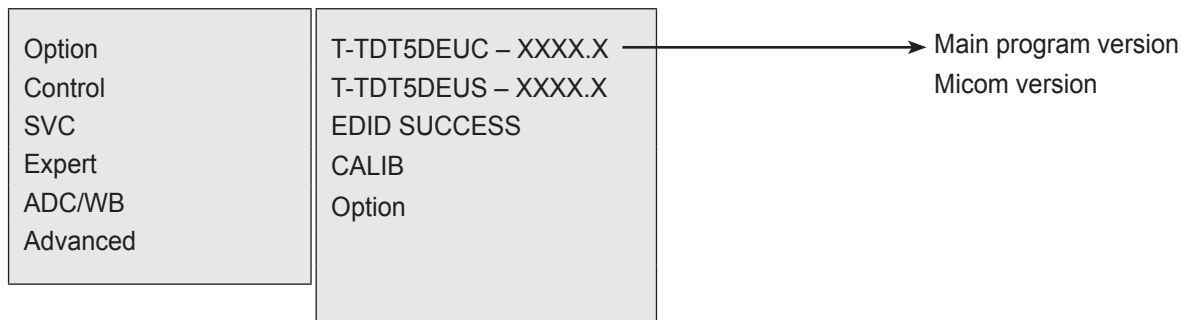


4-3 Upgrade

4-3-1 How to Check the Version of the Program

1. Procedures for checking in the Factory Menu.

When entering Factory Mode, the version of the software is displayed at the bottom of the menu as described on 4-2-2 How to Access Service Mode.



4-3-2 USB Download Method

1. Copy the Upgrade Files into the ROOT folder in USB flash driver.
2. USB Download
 - 1) Connect the usb memory stick including file "T-TDT5DEUC - XXXX.X"
 - 2) Enter "Software Upgrade"
 - 3) A product is going to find the file which is to be used for upgrading.
 - 4) It takes about 2~3 minutes to complete software upgrade
 - 5) When the upgrade finishes, discard the usb memory stick and restart the set.
 - 6) To confirm, the update is successfully done, enter factory mode and check the version of program "T-TDT5DEUC - XXXX.X"



MEMO